

ABSTRACT

5 A photoresist layer is preprocessed by carrying out an ion beam
implantation onto a patterned photoresist layer with conductive ions. The
conductive ions may comprise ions of carbon, SB, indium, silicon, or other
metallic/semiconductor atoms/molecules. The ion implantation is carried
out by applying ion beams of energy lower than 1000 ev such that the pre-
process implantation would not cause any alterations to the profile or
layer structure of the photoresist layer. In order to assure sufficient
10 conductivity is achieved in the photoresist layer, it is desirable that a high
dose of implanting ion beam is used, preferable having a ion dosage in a
range of 10^{16} /cm² to 10^{18} /cm². A large quantity of resist out-gassing
would occur during the high dose implants. Wafers with resist patterns
can thus be subject to electron beam inspections without the problems of
15 electric charging and photoresist out-gassing.